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| EXAMINER | |
|---|---|
| CHRISS, ANDREW W | |

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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

| Office Action Summary | Application No. | Applicant(s) | |
|---|---|---|---|
| | 10/500,021 | DONG, JIXIONG | |
| | Examiner | Art Unit | |
| | Andrew Chriss | 2472 | |

*-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --*

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1)☒ Responsive to communication(s) filed on *16 December 2009*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

4)☒ Claim(s) *1,3,5,7-9 and 12-15* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1, 3, 5, 7-9, and 12-15* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

**Application Papers**

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

## DETAILED ACTION

### *Response to Amendment*

1. Applicant's amendment, filed December 16, 2009, has been entered and carefully considered. Claims 1 and 8 are amended, Claims 2, 4, 6, 10, and 11 are canceled, Claims 12-15 are newly added and Claims 1, 3, 5, 7-9, and 12-15 are currently pending.

2. In light of Applicant's amendment to Claim 1, rejection of Claims 1 and 3 under 35 U.S.C. 101 is withdrawn.

3. In light of Applicant's amendment to Claims 1 and 8, rejection of Claims 1, 3, 5, and 7-9 under 35 U.S.C. 112, second paragraph, is withdrawn.

4. In light of Applicant's amendment to Claims 1 and 8, the outstanding rejections of Claims 1, 3, 5, 8, and 9 under 35 U.S.C. 102(b) and Claim 7 under 35 U.S.C. 103(a) are withdrawn.

### *Claim Objections*

5. **Claims 1, 12, and 14** are objected to because of the following informalities:

**Regarding Claim 1**, claim language "by each of the node" on line 8 should read "by each of the *nodes*" and claim language "wherein protection for the services" on line 28 should read "wherein *when* protection for the services" (emphasis added by Examiner).

**Regarding Claim 12**, claim language "different ones of the plurality of logic-system" should read "different ones of the plurality of logic-systems."

**Regarding Claim 13**, claim language "the plurality of logic-system" should read "the plurality of logic-systems."

6. Appropriate correction is required.

***Claim Rejections - 35 USC § 112***

7. The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

8. **Claims 12-15** are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claims contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor, at the time the application was filed, had possession of the claimed invention. Examiner notes that the citations herein from Applicant's specification are taken from the instant application's pre-grant publication (United States Patent Application Publication US 20050086232 A1). **Claim 12** recites "assigning each fiber and node in the network to one or more of a plurality of logic-systems in the network based on protection levels and modes," while **Claim 14** recites "assigning each physical media and node in the network to one or more of a plurality of logic systems based on protection levels and modes." Paragraph 0039 of Applicant's specification states "As a node can belong to different basic network topology and each network may have different protection mode, a physical media with the same basic topology, the same level and the same protection mode can be seen as a whole, called logic-system." There is no support in Applicant's disclosure, as originally filed, for each fiber/physical media and node to be assigned to one or more of a plurality of logic systems. **Claim 13** recites "assigning the each media to the plurality of logic-system based on the network element type, service direction, fiber

number, and basic network topology type." Paragraph 0039 of Applicant's specification describes the characteristics of a logic system but does not describe how media is assigned to a logic-system based on the disclosed characteristics, as required by the claim language: "The third idea is the concept of logic-system. As a node can belong to different basic network topology and each network may have different protection mode, a physical media with the same basic topology, the same level and the same protection mode can be seen as a whole, called logic-system. Characteristics of a logic-system are as follow: level, such as 155M, 622M, 2500M etc.; network element type, such as add/drop multiplexer (ADM), terminal (TM) and regenerator (REG); service direction, such as unidirectional or bi-directional; protection mode, such as channel protection, multiplex section protection, 1+1 protection, 1:N protection, sub-network connection protection etc.; fiber number, such as 2 fibers, 4 fibers; and basic network topology type, such as ring, link, etc. ADM logic-system includes east direction line, west direction line and selectable branches. TM logic-system includes east direction/west direction line and selectable branches. With these characteristics, working page and protection page are generated by analyzing add/drop service or passing through service. The concept of logic-system simplifies service configuration and provides possibility for implementing protection flexibly." It's just characteristics of logic systems, no disclosure of assignment. **Claim 15** recites "receiving and de-multiplexing…virtual containers" and "switching the de-multiplexed virtual containers." However, Applicant's specification, as originally filed, does not provide support for the de-multiplexing operation.

9. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

10. **Claims 12-15** are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

**Regarding Claim 12**, there is a lack of antecedent basis for claim language "each node assigned to both the first and second logic-systems." The claim language states that each node in the network is assigned to "one or more of a plurality of logic-systems" but does not define first or second logic-systems, or that a node is assigned to both logic systems.

**Regarding Claim 13, t**here is a lack of antecedent basis for claim language "the each media."

**Regarding Claim 14**, there is a lack of antecedent basis for claim language "both the first and second logic-systems." The claim language states that each node in the network is assigned to "one or more of a plurality of logic-systems" but does not define first or second logic-systems, or that a node is assigned to both logic systems. Claim 15 is rejected due to its dependence on Claim 14.

***Claim Rejections - 35 USC § 102***

11. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

12. **Claims 1, 3, 5, 8 and 9** are rejected under 35 U.S.C. 102(b) as being anticipated by Taniguchi (United States Patent 6,122,250).

**Regarding Claim 1**, Taniguchi discloses dividing resources of optical ports into multiple minimum protection units (i.e., virtual containers; see Figure 33 and column 4, lines 57-67),

defining a plurality of logic-systems comprising nodes and fiber between the nodes connected in a ring formation (Figure 32), mapping the virtual containers to the logic systems (i.e., sending a virtual container via the nodes in the ring (column 4, line 57 - column 5, line 21). Further, Taniguchi discloses automatic protection switching (Figure 32), wherein a determination is made as to whether protection is needed for the traffic carried in the ring due to a fault (column 4, lines 35-44). The node can be configured as a passing mode, where the input bus on the protection ring is connected to the output protection bus (Figure 32, (c) full pass through); switching mode, where the input working bus is connected to the output protection bus (Figure 32, (b) switching), a bridging mode wherein the input protection bus is connected to an output working bus (Figure 32 (a) bridge), and a normal working mode connecting the input working bus to the output working bus (Figure 32, (d) full pass through). Taniguchi further discloses multiplex section protection, path protection, or sub-network connection protection (Figure 32, column 4, line 25 – column 5, line 25), wherein K1 and K2 bytes are used to implement multiplex protection switching, path protection, and sub-network (i.e., switch-level) protection in response to detection of an alarm). Taniguchi further discloses determining, where protection for services carried by a logic-system which adopts a protection mode of multiplex section protection is needed, a working mode by each of the nodes (column 6, lines 45 - column 7, line 32, wherein each node in the network determines a protection mode in response to detection of a link failure). **Claim 8** comprises substantially the same limitations as Claim 1, claimed as a device. Taniguchi further discloses each node comprising a controller unit (MP) and a switching unit (Figures 5 and 7) performing the method above (column 12, line 66 – column 13, line 51).

**Regarding Claim 3**, Taniguchi discloses configuring the node via a squelching operation in response to a received message (i.e., one of a working page, switching page, bridging page, or passing page), such as a received alarm indicator signal (Figures 34, 35A, 35B; column 5, lines 49-60) or the K byte of an automatic protection switching datagram (column 5, lines 8-21).

**Regarding Claim 5**, Taniguchi discloses VC3 virtual containers (Figure 33 and column 4, lines 57-67).

**Regarding Claim 9**, Taniguchi discloses working pages, passing pages, bridging pages, and switching pages as described with regard to Claim 3 above.

***Claim Rejections - 35 USC § 103***

13. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

14. **Claim 7** is rejected under 35 U.S.C. 103(a) as being unpatentable over Taniguchi in view of Russell et al (United States Patent 6,917,630), hereinafter Russell. Taniguchi discloses all of the limitations of Claim 1, as described above. However, Taniguchi does not disclose adjusting a crossing services which are sent to the same minimum protection unit into different minimum protection units by a time-division cross-connect unit in the transmission system. In the same field of endeavor, Russell discloses a protection switching system, wherein a plurality of virtual containers (i.e., minimum protection units) are simultaneously generated, interleaved with OSI Layer 2 data (Figure 11, 1100 and 1103), and subsequently transmitted across a synchronous network at the same time (Figure 11, 1104). Upon receipt, the payload bytes of each of the virtual containers is examined (Figures 18 and 19). It would have been obvious to one of

ordinary skill in the art at the time the invention was made to combine the virtual container interleaving disclosed in Russell with the protection switching disclosed in Taniguchi in order to reduce transmission delay in a synchronous digital delay without further encapsulation in intermediate protocol layers (see column 2, lines 58-63 of Russell).

15. **Claims 12 and 14** are rejected under 35 U.S.C. 103(a) as being unpatentable over Taniguchi in view of Barker et al (United States Patent Application Publication US 2003/0007513 A1), hereinafter Barker. Taniguchi discloses assignment of physical media/fiber and nodes to a plurality of logic-systems (column 4, line 57 - column 5, line 21 and Figure 32), mapping received virtual containers by a single optical port of a first node in the fiber path to different ones of the plurality of logic systems including mapping a first received virtual container to a first logic-system and a second received virtual container to a second logic-system (Figure 33 and column 4, lines 57-67), and the passing, bridging, and switching working mode, as described above with regards to Claim 1. However, while Taniguchi discloses receiving virtual containers and configuring a switch according to the value of a K1 byte (Figure 32, column 4, line 25 – column 5, line 25), Taniguchi does not disclose selectively switching the virtual containers. In the same field of endeavor, Barker discloses a switching architecture supporting automatic protection switching that switches frames comprising virtual containers (Figure 3 and paragraphs 0100-0101). It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the virtual container switching disclosed in Barker with the automatic protection switching disclosed in Taniguchi in order to combine at least two data signals having an input data rate into a single data stream having an output data

rate being higher than the input data rate for transmission on a shared medium (see paragraph 0024 of Barker).

16. **Claim 15** is rejected under 35 U.S.C. 103(a) as being unpatentable over Taniguchi and Barker as applied to claim 14 above, and further in view of Egoshi (United States Patent 5,870,403). The combination of Taniguchi and Barker discloses or suggests all of the limitations of Claim 14, as described above. Taniguchi further discloses receiving virtual containers and configuring a switch into the claimed working modes (Figure 32 and column 4, line 25 – column 5, line 25), while Barker further discloses switching virtual containers (Figure 3, paragraphs 0100-0101). However, the aforementioned combination does not disclose de-multiplexing virtual containers each formed by multiplexing different virtual containers. In the same field of endeavor, Egoshi discloses receiving virtual containers and performing a demultiplexing operation (column 6, lines 52-67). It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the demultiplexing operation disclosed in Egoshi with the automatic protection switching system disclosed in Taniguchi, as modified above, in order to establish signal synchronization between a primary and alternate transmission lines (see lines 47-51 of Egoshi).

***Response to Arguments***

17. Applicant's arguments filed August 20, 2009 regarding rejection of Claims 1 and 8 under 35 U.S.C. 102(b) have been fully considered but they are not persuasive. Applicant states that Taniguchi fails to anticipate the features of "mapping more than one of the minimum protection units by each of the node into different ones of the plurality of logic- systems", wherein "a first

logic-system of the plurality of logic-systems respectively adopts a first protection mode of multiplex section protection, path protection or sub- network connection protection; a second logic-system of the plurality of logic-systems adopts a second protection mode of multiplex section protection, path protection or sub-network connection protection" and the features of "where protection for the services carried by a logic-system which adopts a path protection is needed, performing a path protection by each of the node belonging to the logic-system; where protection for the services carried by a logic-system which adopts a sub-network connection protection is needed, performing a sub-network connection protection by each of the node belonging to the logic-system" in claim 1. Examiner respectfully disagrees. Taniguchi discloses minimum protection units (i.e., virtual containers; see Figure 33 and column 4, lines 57-67), and mapping the virtual containers to the logic systems (i.e., sending a virtual container via the nodes in the ring (column 4, line 57 - column 5, line 21 and Figure 32). Further, Taniguchi discloses multiplex section protection, path protection, or sub-network connection protection (Figure 32, column 4, line 25 – column 5, line 25), wherein K1 and K2 bytes are used to implement multiplex protection switching, path protection, and sub-network (i.e., switch-level) protection in response to detection of an alarm). Examiner notes that multiplex section protection is described on page 1 of Applicant's specification ("the basic principle of multiplex section protection is transferring switching information through K1/K2 bytes in SDH frame"). Therefore, the disclosure in Taniguchi of implementing protection switching based on K1 and K2 bytes (column 4, line 25 – column 5, line 25) anticipates the broadest reasonable interpretation of the claim language "multiplex section protection." Further, Examiner submits that the claim language "path protection" and "sub-network protection" are not further defined in the claim

language or the specification so as to preclude a broadest reasonable interpretation encompassing the actions taken by the switches themselves to implement automatic protection switching in response to detection of a failure (column 4, line 25 – column 5, line 25). Lastly, Taniguchi discloses determining, where protection for services carried by a logic-system which adopts a protection mode of multiplex section protection is needed, a working mode by each of the nodes (column 6, lines 45 - column 7, line 32, wherein each node in the network determines a protection mode in response to detection of a link failure). Therefore, rejection of Claims 1 and 8 under 35 U.S.C. 102(b) is maintained.

***Conclusion***

18. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Nagamine et al (United States Patent Application Publication 2003/0026272 A1), is directed to configuring protection modes based on K1 and K2 bytes in an automatic protection switching system.

19. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37

CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

20. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Andrew Chriss whose telephone number is (571)272-1774. The examiner can normally be reached on Monday - Friday, 7:30 AM - 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, William Trost can be reached on 571-272-7872. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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